

# **GIS Systems and Renewable Energy Certificate Trading**

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# APX Overview

- A leading independent transaction processing agent for wholesale electric power markets
  - Supports over 550 TWh in trades globally
  - Largest independent power scheduler in WSCC/WECC & ERCOT (default Texas QSE)
  - Back office financial settlements and data processing services
  - Serves over 200 client companies in WECC, ERCOT, Northeast, UK and Scandinavia
  - Operates renewable energy markets and title registries in California, Texas, New England and the Midwest.

# Brief History...

- Public policies create need for credible data system to ensure:
  - value for customers
  - currency for market participants
  - verification for regulators
- Years of debate ensue.....
- Two options investigated
  - Contract-path tracking
  - Certificates-based accounting

# APX Environmental Registries

- Centralized registries that track generation attributes and title
- Registry databases assists all participants to comply with:
  - RPS and GPS requirements
  - Disclosure regulations
  - Product verification
  - Other purchase requirements

# Registry System Examples

- **Texas Renewable Credit Program**
  - APX delivered Texas RECs system to ERCOT
  - monitors RPS compliance and computes RPS
  - Deals with renewables only, no emissions
- **New England Generation Information System**
  - APX is administrator of the NEPOOL GIS
  - Registry will track RPS eligibility, generation attributes, and emissions factors from ALL generation in the NE-ISO control area

# NEPOOL GIS Detail

- Accounts for all generation in ISO-NE from source to sink
  - Authenticates generation attributes and creates base for verifiable tradable certificate markets
  - Provides emissions data and meets disclosure reporting requirements for users
  - Automates complicated processes
    - reserve transactions (green tags)
    - pumped storage
    - imports/exports
    - “residual mix”



# Certificate Fields

- Asset information
- Fuel Source
- RPS Eligibility for MA, CT, and ME
- Emissions data
- Labor characteristics
- Vintage
- MWh generated
- Location
- Green-e eligibility



# Generation Information System

[MEMBER'S LOGIN](#)

[NEW/REGISTER](#)

[EMAIL](#)

[CONTACT](#)

## Program Information

[News Room](#)

[Generation Information System Program Information](#)

[NEPOOL](#)

[ISO-NE](#)

[GIS Operating Rules](#)

## Account Holder Information

[GIS Training Information](#)

- [GIS Introductory Training Course Materials - April 10, 2002](#)
  - [GIS Introductory Training Course - Ashley Houston, APX Inc.](#)
  - [NE-GIS A Brief History - Patricia D. Stanton, Deputy Commissioner Massachusetts Division of Energy Resources](#)
  - [New England GIS - Sharon Weber, Massachusetts Department of Environmental Protection](#)
  - [NEPOOL GIS - Robert Ludlow, NEPOOL GIS Project Manager](#)

[Frequently Asked Questions](#)

[Public Reports](#)

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# NEPOOL-ERCOT Compared

Program and System Features	ERCOT	NEPOOL
Tradable Certificates	✓	✓
RPS Compliance Reporting	✓	✓
Renewable Generation Verification	✓	✓
Non-Renewable Generation Verification		✓
Emissions Tracking		✓
Verification of Marketing Claims	✓	✓
Imports/Exports		✓
System Operator Interface	✓	✓
Bulletin Board for Certificate Exchange		✓
Administrative Tools	✓	✓
Multistate Account Management		✓
Certificate Banking and Borrowing	✓	
Customized Reporting	✓	✓

# Key Challenge for Renewables...

- Capturing the environmental value
- Environmental registries:
  - Create platform for monetization of the environmental value
  - Facilitate the ability of renewables generators to access an additional revenue stream or “green” premium

# **In Addition, Environmental Registries...**

- Facilitate green power and green tag markets
- Provide generators with additional revenue stream for environmental attributes outside of wholesale energy markets
- Offer particular benefits for intermittent and small and behind the meter generation

# Other Benefits

- Reduce transaction costs for generators and suppliers
- Introduce administrative efficiency
- Provide flexibility to meet current/future requirements
- Provide third-party verification
- Address data confidentiality concerns

# Issue: Regional Compatibility

- Key Questions
  - Is physical delivery required?
  - What constitutes a compatible system?
- Regional Compatibility Efforts
  - NYISO - ISONE technical and economic issues
  - Hydro Quebec looking for way to participate
  - PJM, NYISO, and Ontario certificate efforts
- Standard Market Design/RTO Activity
- NARUC resolutions

# Other Key Issues

- Trading periods
- Treatment of QFs
- Small and BTM generation
- Reserved certificates
- Trading platform
- Market liquidity



# Participation to Date

- As of August, 2002
  - over 100 approved account holders
  - 450 of the total 650 generators approved
- Nearly 6 million certificates traded during first trading period
- Several active traders

# Questions???